



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,351	06/09/2006	Otto Carlowitz	03100309AA	5548
30743 7590 05/13/2010 WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190				
EXAMINER NGUYEN, NGOC YEN M				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
05/13/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,351

Applicant(s)

CARLOWITZ ET AL.

Examiner

Ngoc-Yen M. Nguyen

Art Unit

1793

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 15-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, 10-12, 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the preamble states that the claimed process is a method "for the thermal purification of an oxygen-containing or non-oxygen containing exhaust gas which contains organosilicon compounds"; however, there is no clear positive step for the "thermal purification", it is unclear if the step of preheating the exhaust gas as required in claim 1, to any temperature would be sufficient to "thermally" purify the exhaust gas containing organosilicon compounds. In the "removal" step, the adhesions are defined as being formed on the heat storage material from oxidation of said organosilicon compound but there is no limitation in the claim to indicate where, when and how the oxidation occurs.

In claim 3, there is no clear antecedent basis for "the regenerative preheating and cooling", "the oxidation of the exhaust gas".

In claim 12, there is no clear antecedent basis for "*additionally required energy* is introduced with the aid of admixing of natural gas into the exhaust gas..."

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-12, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-061822 in view of Ohlmeyer et al.

JP '822 discloses a method for treating exhaust gas by heat-storage exhaust-gas treating equipment (note title). The exhaust gas to be treated contains organic silicon (note abstract).

JP '822 teaches that at lower temperature, crystal like silicon adheres easily on the surface of the heat storage element to cause blockade (note paragraph [0008]). Therefore, it is known in the art that in order to prevent the blockade, the heat storage element was cleaned periodically (note paragraph [0009]). The teaching of JP '822 should not be limited to the preferred embodiment of treating the exhaust gas at high temperature to prevent the formation of amorphous clogging oxidation products.

JP '822 discloses that more than one regenerators, which have a heat storage element, can be used to treat the exhaust gas (note the Figure).

It would have been obvious to one of ordinary skill in the art to reuse the heat storage element, after the cleaning step to remove silicon adhesion on the surface of the heat storage element, in order to minimize the cost of fresh heat storage element. The reuse step is considered the same as the claimed "introduction" of the heat storage material.

The difference is JP '822 does not specifically disclose that the heat storage material is used as a bed.

Ohlmeyer '567 discloses a process and apparatus for continuously pre-heating combustion air and catalytically reducing noxious substances in flue gas by using heat storage elements (note claim 1). The heat storage elements flow down the apparatus that is considered the same as a moving bed. The heat storage elements are continuously removed and passed through a cleaning device (10) and recycled back (note Figure 1 and column 1 6, lines 41-51).

It would have been obvious to one of ordinary skill in the art to use the heat storage element in JP '822 as a moving bed, as suggested by Ohlmeyer '567 so that the heat storage element could be removed continuously to be cleaned and recycled back to the process thereby enabling a continuous process.

Applicant's arguments filed February 2, 2010 have been fully considered but they are not persuasive.

Applicants argue that JP '822 describes a temperature control measure where the temperature of heat used is less than that for organic silicon to turn into silica and/or crystal like silicon.

In JP '822, it is disclosed that when the organic silicon is heated to greater than 250°C, crystal like silicon is formed and when heated to greater than 450°C, silica is formed (note paragraph [007]). However, JP '822 does teach that by heating the combustion chamber to the range of 750-810°C, the formation of crystal like silicon and

silica can be prevented (note paragraph [0030]). Thus, the preferred process of JP '822 desires to maintain the combustion chamber at high temperature to prevent the formation of crystal like silicon and silica. As stated in the above rejection, the disclosure of JP '822 should not be limited to just the preferred embodiment or process. JP '822 clearly teaches that it is known in the art to clean the heat-regenerative element (which is considered the same as the claimed heat storage material) to remove blockade formed by crystal-like silicon and/or silica (note paragraphs [0008]-[0009]). Thus, it would have been obvious to one skilled in the art to use the known method as disclosed in JP '822 to clean the heat storage material and to use a bed as suggested by Ohlmeyer '567 so that the heat storage can be continuously removed, cleaned and returned to the process to minimize down time. It should be noted that the claimed invention does not require any degree of cleaning for the heat storage material, as long as it was cleaned.

Applicants argue that Ohlmeyer '567 that the heat storage elements are regenerated with respect to its catalytic activity.

Regardless of how the heat storage elements are regenerated and with respect to what property, Ohlmeyer '567 still fairly suggests to one skilled in the art the use of a moving bed of heat storage elements so that the heat storage elements can be continuously removed, regenerated and returned to the process.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner can normally be reached on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/
Primary Examiner, Art Unit 1793

nmn
May 13, 2010